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Research Article

Cross-Sectional Study of Ultrasonography Findings of Post Treated Breast Cancer Patients at Territory Hospital

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Abstract

Background: Breast carcinoma is one of the most frequent malignancies among Nepalese women. However, there is little case but male are also affected with this disease. Prognosis of breast cancer seems good if treated on time and better treatment guidelines. This study aimed to evaluate prevalence of recurrence or distance metastases in the breast cancer patients treated with conventional treatment protocol.

Materials and Methods: A single center descriptive retrospective study to evaluate the prevalence of recurrence or distance metastases in breast cancer by using cross-sectional study of ultrasonography findings of post treated breast cancer patients at BP Koirala Memorial Cancer Hospital. This study was conducted between 1st April, 2023 to 30th July, 2023 and 420 populations were included. Analysis was completed with IBM SPSS 25 Statistics.

Results: During the period time, total 420 patient's reports were evaluated. There were 413 female and 7 male patients, included in this study with age group of 24 - 75 (Mean 47.45 with Std. Deviation 11.3%) years. Prevalence of local recurrence or distance metastases during follow up in breast cancer patients treated with conventional treatment protocol is 1.67%.

Conclusion: This study concluded that prognosis of breast cancer patients who were treated on time with proper treatment guidelines are really very good in Nepal.

Keywords: Breast Carcinoma; Prevalence; Prognosis; Ultrasonography; Recurrence and Distance Metastases

Introduction

Breast carcinoma is a leading public health issue in developing countries like Nepal. Literacy and negligence of awareness about disease are principal causes which increases date rate due to breast carcinoma. Breast carcinoma is one of the most common carcinoma diagnosed in women. Rising figure of the commonest malignant tumors breast cancer newly reported nearly 2.3 million cases globally occupying 11.7% of all cancer cases in 2020 with 5th leading death by cancer, accounting for 685,000 deaths [1]. Mortality of female by breast cancer was on peak during 1989 but decreased by 43% due to earlier diagnosis by awareness towards mammography screening along with improvements in treatment while very soon it will be the leading cause of death again due to rapid increase in incidences [2]. In Nepal among both sexes, breast

carcinoma the third-ranked cancer occupying 9.6% of total cases while in female it is second common [3]. There are so many tools available to evaluate the management/post treatment status of breast cancer among which ultrasonography (USG) is the most easily available and convenient one [4].

There are several issues with patients who survived from breast cancer. Several cross-sectional studies and questionnaire based researches were done previously. One of the research article concluded that five most frequent, severe, and distressing symptoms faced in the first 3 years after cancer treatment were reported as numbness to the affected side, difficulty sleeping, fatigue, pain, and skin changes. Almost half of the participants reported symptoms indicating a definite diagnosis of anxiety, and nearly 70% of them rated themselves as borderline depressed or depressed. Approximately 50% of participants reported no change in their relationships with significant people, and about 60% of them reported a high-level fear of recurrence. Symptom frequency, severity, and distress were positively associated with anxiety, depression, and menopausal symptoms, while relationship changes were negatively associated with menopausal symptoms, anxiety, and depression. Support and information for these women are required after active treatment has ceased to deal with ongoing symptoms [5].

Aim of the Study

Our main aim of study is two evaluate the ultrasonography findings of post treated breast cancer patients and calculate the prevalence of recurrence or metastases among post treated breast cancer patients undergoing ultrasonography (USG) for routine follow up in Department of Radiodiagnosis, Imaging and Nuclear Medicine at B.P. Koirala Memorial Cancer Hospital. We also evaluated the post treatment major complains, geographical representation and major causes for recurrence or metastases. BPKMCH is a tertiary cancer hospital located outside the Kathmandu valley in Bharatpur, Chitwan District, Nepal.

Data and Methods

Study design and study population

A descriptive cross-sectional study was conducted in the Department of Radio-diagnosis, Imaging and Nuclear Medicine at BP Koirala Memorial Cancer Hospital, Bharatpur, Nepal. This study was conducted between 1st April, 2023 to 30th July, 2023 and 420 populations were included. This study was conducted among post treated breast cancer patients, who came for routine follow up and to have ultrasonography (USG). A sample size of 420 was taken and convenience sampling was done.

Only those patients, who came for ultrasound after complete conventional treatment for breast cancer, were included in our study. The patients, who came for screening and mid treatment followed up, were excluded from study. Convenience sampling was done and minimum sample size was calculated using below formula 109.48:

$$n = Z^2 \, x \, \frac{p \, x \, q}{e^2}$$

$$= 346$$

Where, n= minimum required sample size Z = 1.96 at 95% Confidence Interval (CI)

p= Prevalence of the disease, 28.5% [6]

[Prevalence of the diseases (p) $= \frac{T_{disease}}{Total} \times 100$]

q = 1-p and e = Margin of error, 2%.

The required minimum sample size (under margin error 2%) calculated was 346. In this study, 426 number of sample size was taken for the study. All the clinical details related to patients were collected with informed consent form.

Data were entered and analyzed in IBM SPSS Statistics version 25.0. Point estimate at 95% confidence interval was calculated along with frequency and percentage for binary data and mean with standard deviation for continuous data.

Results

Among the total 420 patients, there were 413 female and 7 male patients, included in this study with age group of 24-75 (Mean 47.45 with Std. Deviation 11.3%) years. Retrospective data were collected from those patients who had came for regular follow up ultrasonography (USG) screening after complete conventional treatment of breast carcinoma. We included from 6 months to 20 years follow up cases in our study. Most of them (approximately

60%) had no complications or not any health related complains. Approximately 30 to 38% patients had complains but not related to breast cancer. Few number of patients had complain regarding breast pain, chest pain, shortness of breathing (SOB), arm swellings of surgery side, difficulty in arm movement of surgery side, lower limb radiating pain and abdominal pain.

Among all 420 patients, Only 14 patients lie in 20 - 30 age groups where as 105 patients lies in 31 - 40 age groups. On the same way, 161 patients lie in 41 - 50 age groups, 77 patients lie in 51 - 60 age groups, only 56 patients lie in 61 - 70 age group and 7 patients in 71 - 80 age groups. First highest number of patents were found in 41 - 50 age groups while second highest were found in 31 - 40 age groups. It concluded that 31 to 50 age groups people are highly affected from breast carcinoma (Table 1).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 - 30	14	3.4	3.4	3.4
	31 - 40	105	25	25	28.4
	41 - 50	161	38.3	38.3	66.7
	51 - 60	77	18.3	18.3	85
	61 - 70	56	13.3	13.3	98.3
	71 - 80	7	1.7	1.7	100.0
	Total	420	100.0	100.0	

Table 1: Age group frequency of breast carcinoma.

Our country Nepal has an extremely high grade of geographic miscellany and is divided into three main regions which are Terai, Hilly, and Himalayan. The Terai region, covering 17% of Nepal's area, is a lowland region with some hill ranges and is culturally more similar to parts of India. The Hilly region, encompassing 68% of the country's area, consists of mountainous terrain without snow and is inhabited by various indigenous ethnic groups. The Himalayan region, covering 15% of Nepal's area, contains snow and is home to several high mountain ranges, including Mount Everest, the world's highest peak. Among all patients from different three regions of Nepal and its neighboring territory in our study, there were 317 patients from terai region, 96 patients from hilly region, no patient from Himalayan region and 7 patents were from neighboring country India. Most of the patients came from terai region while no from Himalayan region. Some of patients came from India due to closet access of location near Indian boarder which is summarized in table 2.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Terai	317	75.5	75.5	75.5
	Hilly	96	22.9	22.9	98.3
	Himalayan	0	0	0	98.3
	India	7	1.7	1.7	100.0
	Total	420	100.0	100.0	

Table 2: Disease frequency in different geographic region in Nepal.

Breast carcinoma can develop in anybody. However, due to differences in breast development and lifetime exposure to estrogen, it is more common in females than males. Males and females share some risk factors that can increase the chance of developing breast cancer. Other risk factors are specific to a person's sex. Among 420 patients included in study, 413 patients were female while 7 of them were male (Table 3).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	413	98.3	98.3	98.3
	Male	7	1.7	1.7	100.0
	Total	420	100.0	100.0	

Table 3: Sex frequency distribution in our study.

Surgical options for breast carcinoma depending on TNM staging of disease are modified radical mastectomy (MRM) and breast-conserving surgery (BCS). Over the decades, multiple researches have been published, and they have shown that BCS followed by radiotherapy has equivalent disease-free survival (DFS) and overall survival (OS) as compared with MRM [7]. All 420 patients included in this study had history of breast surgery either right MRM, left MRM or right/left BCS were included. Among all patients, 218 patients had right MRM, 175 patients had of left MRM, and 27 had right/left BCS. Maximum numbers of patient were of right MRM while minimum patient were of BCS (Table 4).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Right MRM	218	51.9	51.9	51.9
	Left MRM	175	41.7	41.7	93.6
	Right/ Left BCS	27	6.4	6.4	100.0
	Total	420	100.0	100.0	

Table 4: Surgery type frequency modified radical mastectomy (MRM) Vs breast-conserving surgery (BCS) in this study.

We included breast cancer treated patients from 6 months to 20 years follow up in our study. Among all patients, they were categorized according to duration of follow up after conventional treatment of breast carcinoma in our study. There were 187 patients who had less than one year follow up where as 135 patents had 1 to 3 years follow up, 42 patients had 3 to 5 years and 56 patients had more than 5 years follow up. Several studies concluded that overall survival of breast cancer patients is very good. This is retro-prospective study and our study had not aimed to evaluate the survival rate of patients. In spite of that we encountered few patients with 20 years survival after conventional treatment of breast carcinoma without any complains. First highest number of patents were found in less than 1 year follow up group whereas second highest were found in 1 to 3 years group. It seems that more breast cancer patients came for follow up for 3 years while this frequency decreases with time. Literacy and negligence of awareness about after treatment follow up of diseases may lead the cause for that (Table 5).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year follow up	187	44.5	44.5	44.5
	1 to 3 years follow up	135	32.1	32.1	76.7
	3 to 5 years follow up	42	10.0	10.0	86.7
	More than 5 year follow up	56	13.3	13.3	100.0
	Total	420	100.0	100.0	

Table 5: Follow up of breast carcinoma patient after treatment.

Radiation therapy can be used to treat all stages of breast cancer. In spite of that all treated breast cancer patients did not received Radiation therapy (RT). Radiation therapy is recommended for most people who have breast-conserving surgery (BCS). In our

study, 141 patients did not receive Radiation therapy (RT) where as 181 patients received 15 fractions (#) radiotherapy dose and 98 patients received more than15 fraction (#) radiotherapy dose (Table 6).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Patients not received RT	141	33.6	33.6	33.6
	Patients received 15# RT	181	43.1	43.1	76.7
	Patients received > than 15# RT	98	23.3	23.3	100.0
	Total	420	100.0	100.0	

Table 6: Breast cancer patients who or not received radiotherapy (RT) treatment.

All patients in this study received chemotherapy before or after the surgery. Among 420 patients, 20 patients received less than 6 cycles of chemotherapy, 178 patients received complete 6 cycles of chemotherapy and 222 patients received more than 6 cycles of chemotherapy. The patients who did not received complete 6 cycles chemotherapy was due to negligence or post chemotherapy complications or financial crisis. It seems that maximum number of patients had revived complete cycle of chemotherapy (Table 7).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 6 cycles	20	4.8	4.8	4.8
	6 cycles	178	42.4	42.4	47.1
	Above 6 cycles	222	52.9	52.9	100.0
	Total	420	100.0	100.0	

Table 7: Frequency of chemotherapy received by breast cancer patients in this study.

Care for people diagnosed with breast cancer does not end when active treatment has finished. Regular follow up needed to evaluate any other complications, local recurrence or distance metastases. Follow-up care may include regular physical examinations, medical tests, or both. On the other hand, recovery of the patients in coming the months and years ahead should be evaluated. Half yearly medical tests including mammography or bilateral breast ultrasonography, abdominal ultrasonography, Computed Tomography, biochemical test and physical exams are recommended surveillance strategies for people who have been treated for breast carcinoma. More intensive follow-up in people with no symptoms has not been proven to improve outcomes. Breast carcinoma can come back, or recur, in the breast or other areas of the body.

In our study, we only included bilateral breast ultrasonographic and abdominal ultrasonographic finding. Among all patients, ultrasonography findings of 237 patients (56.4%) were normal study whereas ultrasonography findings of 176 (41.9%) patients were abnormal study without recurrence or distance metastases like fatty liver, renal problems, fibroid uterus etc. (age related problems). Only 7 patients (1.7%) had recurrence or distance metastases like axillary lymph nodes metastases, liver metastases etc (Table 8). Prevalence of local recurrence or distance metastases in breast cancer patients treated with conventional treatment protocol is 1.67% which is very low and significant.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Normal finding	237	56.4	56.4	56.4
	Abnormal finding without metastasis	176	41.9	41.9	98.3
	Abnormal finding with distance metastasis	7	1.7	1.7	100.0
	Total	420	100.0	100.0	

Table 8: Bilateral breast ultrasonographic and abdominal ultrasonographic findings.

Discussion

Breast cancer is one of the tuff challenges for oncology center to manage as the patient arrives at advance stage in Nepal. Those who arrive with early stage go for breast-conserving surgery (BCS) while slightly advanced have modified radical mastectomy (MRM). For all patients who choose surgery, most of them have to go for chemotherapy or radiotherapy or both. There are so many modalities to evaluate the prognosis of the disease among which ultrasonography is most sensitive, cost effective and easily available.

Rising figure of the commonest malignant tumors breast cancer newly reported nearly 2.3 million cases globally occupying 11.7% of all cancer cases in 2020 with 5th leading death by cancer, accounting for 685,000 deaths [1]. In Nepal among both sexes, breast carcinoma the third-ranked cancer occupying 9.6% of total cases while in female it is second common [3]. Mortality of female by breast cancer was on peak during 1989 but decreased by 43% due to earlier diagnosis by awareness towards mammography screening along with improvements in treatment while very soon it will be the leading cause of death again due to rapid increase in incidences [2].

There are so many tools available to evaluate the management/ post treatment status of breast cancer among which ultrasonography (USG) is the most easily available and convenient one [4]. This increase could be due to changes in lifestyle with subsequent increase in prevalence of modifiable risk factors like obesity, smoking and alcohol consumption, hormonal therapy and change in breastfeeding practices. Breast self-examination and appropriate screening in high-risk individuals are considered as the effective method for early detection of breast cancer. Recent study conducted to access the overall knowledge of breast cancer in Nepal had shown poor knowledge on breast cancer risk factors, symptoms and curability among higher secondary school students in Western Nepal [8].

Lack of proper knowledge regarding breast cancer symptoms, risks, screening methods and treatment options among Nepalese women could also explain the rise in incidence as well as mortality due to breast cancer. Several other studies in breast cancer among Nepalese women, the highest incidence of breast cancer have been reported in the age group 45 - 50 years [9]. In our study, similar age group 40 to 50 years age group seems highly affect but 30 to 40 age groups are also affected.

Cases of breast cancer were more in terai region of Nepal of total cases in our hospital while the number of cases was less from Himalayan and Hilly region. Nepal is culturally diverse with different ethnical groups having their own practices and beliefs which significantly alter their lifestyles. As breast cancer is well documented to vary according to race and ethnicity [10], the difference observed in this study could also have resulted from the diversity of culturally distinct population in three different geographical regions of Nepal.

In this study, prevalence of recurrence or distance metastases in the breast cancer patients treated with conventional treatment protocol (Surgery and Chemotherapy with or without Radiation Therapy) was very low i.e. 1.67% which is really not significant. This result showed that prognosis of breast cancer patients who were treated on time with proper treatment guideline are really very good.

Limitation of the Study

There are limitations to this study. Firstly, it is a single center retrospective study and only ultrasonography findings were included so that might be insufficient to describe the reasons for difference in prevalence of recurrence or distance metastases of breast carcinoma cases among different regions of Nepal. Computed Tomography findings and histological diagnosis were not assessed. Further multicentric prospective study design to estimate the stronger characterization of demographic profile would be effective.

Conclusion

In conclusion, our study demonstrates that prevalence of recurrence or distance metastases in the breast cancer patients treated with conventional treatment protocol was very low i.e. 1.67% which is not significant. The results concluded that most of the breast cancer patients who are treated with conventional treatment protocol have higher chance of cure and prognosis of breast carcinoma is high.

Ethical Approval

NA.

Conflict of Interest

All authors declare that there are no conflicts of interests or competing interests with regards to the material in this manuscript.

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Availability of Data and Materials

NA.

Bibliography

1. Jia C., *et al*. "Value of an expanded range of lesions on contrast-enhanced ultrasound for the diagnosis of hypervascular breast masses". *Gland Surgery* 12.6 (2023): 824-833.

2. Siegel RL., *et al*. "Cancer statistics, 2023". *CA: A Cancer Journal for Clinicians* 73.1 (2023): 17-48.

3. Dhakal R., *et al*. "A Scoping Review on the Status of Female Breast Cancer in Asia with a Special Focus on Nepal". *Breast Cancer* 26.14 (2022): 229-246.

4. Guo R., *et al*. "Ultrasound Imaging Technologies for Breast Cancer Detection and Management: A Review". *Ultrasound in Medicine and Biology* 44.1 (2018): 37-70.

5. Chumdaeng S., *et al*. "Health problems among breast cancer survivors after completing conventional treatments: A cross-sectional study". *Nursing and Health Sciences* 22.2 (2020): 436-444.

6. Sapkota G., *et al*. "Prevalence of Breast Cancer in different geographical regions: A Retrospective Study from Central Nepal". *Nepalese Journal of Cancer* 6.1 (2022): 101-105.

7. Clarke M., *et al*. "Effects of radiotherapy and of differences in the extent of surgery for early breast cancer on local recurrence and 15-year survival: an overview of the randomised trials". *Lancet* 366.9503 (2005): 2087-2106.

8. Bhandari PM., *et al*. "Breast cancer literacy among higher secondary students: results from a cross-sectional study in Western Nepal". *BMC Cancer* 16.1 (2016): 119.

9. Dey Subhojit., *et al*. Breast Cancer in Nepal: A Review (2016).

10. Yedjou CG., *et al*. "Health and racial disparity in breast cancer". *Advances in Experimental Medicine and Biology* 1152 (2019): 31-49.